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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,584	03/28/2001	Narutoshi Fukuzawa	P107424-00024	3657

23353 7590 12/18/2002

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EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 12/18/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

09/818,584

Applicant(s)

FUKUZAWA, NARUTOSHI

Examiner

Martin J Angebranndt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. The response provided by the applicant has been read and given careful consideration.

Rejections of the previous office action not repeated below are withdrawn based upon the amendments and arguments of the applicant. Responses to the arguments offered by the applicant are presented after the first rejection to which they are directed.

2 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3 Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Usami et al. '122, in view of Matsumaru et al. EP 0508478 or Hijakata et al. '886.

Usami et al. '122 teach optical recording media, which have, grooves of depths of most preferably 150-200 nm, widths of 200-900 nm (0.2-0.9 microns) and a pitch of 0.3 to 0.9 microns. (6/5-18) The use of various dyes including cyanine and azo dyes is disclosed (6/19-34 and examples) The use of silver reflective layers and methods for making them including sputtering and ion plating is disclosed. (7/23-36). The formation of protective layer on these is also disclosed. (7/37-64).

Matsumaru et al. EP 0508478 describes in table 2, the formation of silver films having high reflectivity using ion beam sputtering. The pressure is disclosed as 2.0×10^{-5} Torr in example 1. (7/5). The silver layer formed in table 2 has the highest reflectivity of any of the layers.

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Hijakata et al. '886 teach the formation of corrosion resistant silver-magnesium alloys for optical recording media. (2/29) These films are formed at sputtering pressures of 1 mTorr and below, particularly 5×10^{-7} Torr. (9/19-43).

It would have been obvious to form media within the scope of the teachings of Usami et al. '122, particularly those having the ability to store the higher density DVD formats, using silver based films formed using the processes of Matsumaru et al. EP 0508478 or Hijakata et al. '886 to gain the higher reflectance of Matsumaru et al. EP 0508478, or the higher corrosion resistance of Hijakata et al. '886.

The examiner notes that the criticality of the upper range pressure boundary has been established for DC sputtering in table on page 29, but notes that the criticality of the lower range has not been shown. From the data in that table and the teachings of the references it seems that increased power and lower gas pressures result in a rough or granular silver film, which inherently would preferentially form a Ag(200) crystalline structure.

It seems from the specification on page 17 that lower pressures lead to higher ratios, (0.55 to 0.60 paragraph bridging pages 16 and 17) compared to higher pressures 0.41 for 1.0 Pa and 0.47 for 0.70 Pa (page 17). For the particular sputtering conditions used by the applicant, this (0.23 Pa) might be the lower limit, but that does not necessarily apply to other sputtering methods, particularly in the case of the claims directed to the medium (1-4). Clearly, there is direction to use low pressures in the prior art of record and other references of record specifically describe the effects of reducing pressure, particularly Kamezaki et al. '969 and Nakashima et al. '398 and this seems to inherently result in rougher films which are predominantly Ag(200). The examiner notes that the claims do not require the diffraction

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measurement, but merely use it to define the films produced. The examiner points out that the teachings of Matsumaru et al. EP 0508478 of the use of ion beam sputtering is broader than its use for Al reflective layers as evidenced by table 2. The examiner holds that there is motivation to preform the sputtering at the low pressures and that these inherently produce films of higher reflectivity, roughness and are inherently predominantly Ag(200).

4 Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiyama et al. EP 0987700.

Kamiyama et al. EP 0987700 teaches forming optical recording media which having the structure shown in figure 3, where the recording layer is coated with a reflective layer, such as silver and a protective layer. The use of silver is disclosed as is the use of sputtering at 1 mTorr. [0038-0039].

It would have been obvious to one skilled in the art to use the sputtering methods at 1 mTorr (~0.13 Pa) to forma an optical recording medium with a silver reflective layer.

The examiner holds that there is motivation to preform the sputtering at the low pressures and that these inherently produce films of higher reflectivity, roughness and are inherently predominantly Ag(200).

5 Claim 6 is considered allowable over the prior art of record, but is objected to as being dependent upon a rejected claim.

6 **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

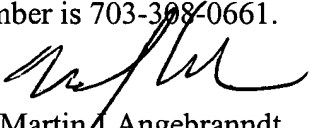
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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebrannndt whose telephone number is 703-308-4397. The examiner can normally be reached on Mondays-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Martin J Angebrannndt
Primary Examiner
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December 16, 2002